

**I Claim**

1. Control apparatus for an aircraft engine, the control apparatus including:

5 engine control means including;  
means for receiving a signal representative of a desired thrust for the engine;

means for receiving a signal representative of the actual thrust of the engine; and

10 means for analysing the above signals and for producing a signal representative of a desired fuel flow for the engine; and

fuel control means including:

15 means for receiving a signal representing a desired fuel flow;

means for providing a signal to a fuel monitoring means for regulating the flow of fuel to the engine;

means for receiving a feedback signal from the fuel monitoring means; and

20 means for analysing the signal representing desired fuel flow and the feedback signal from the fuel monitoring means and adjusting the signal to the fuel monitoring means for achieving the desired fuel flow;

25 wherein the engine control means and the fuel control means are separately powered such that a failure of the power supply to one of them will not necessarily result in a failure of the power supply to the other.

2. Control apparatus according to Claim 1, wherein the engine control means and the fuel control means are  
30 physically separated.

3. Control apparatus according to Claim 2, wherein the engine control means and the fuel control means are provided within separate housings allowing limited communication of data therebetween.

35 4. Control apparatus according to claim 1, further including selection means for receiving first and second

signals each representing desired fuel flow and selecting the lower of the two.

5 5. Control apparatus according to Claim 4, wherein the fuel control means receives the selected lower desired fuel flow signal.

6. Control apparatus according to Claim 4, wherein the first signal representing desired fuel flow is produced by the engine control means.

10 7. Control apparatus according to claim 4, wherein the second signal representing desired fuel flow is produced by a protector means, which is powered separately from the engine control means.

15 8. Control apparatus according to Claim 7, wherein the protector means includes means for receiving a signal representing engine thrust and a signal indicating whether a throttle of the aircraft is idle or in reverse and the thrust reversers not deployed and means for calculating a maximum desired fuel flow demand appropriate for the above conditions.

20 9. Control apparatus according to Claim 8 wherein the signal representing engine thrust comprises a signal representing engine speed.

10. Control apparatus according to claim 1, wherein the engine control means includes means for determining whether  
25 the comparative values of the signals representing actual thrust of the engine and the desired thrust of the engine suggest overthrust and means for reducing or preventing fuel flow to the engine in such circumstances.

11. Control apparatus according to claim 1, further  
30 including fuel monitoring means which may be controlled by the signal from the fuel control means.

12. Control apparatus according to Claim 11, wherein the fuel monitoring means comprises a fuel metering valve which may be adjusted by a torque motor.

35 13. Control apparatus according to Claim 12, wherein the fuel metering valve position controls the fuel flow to

burners of the combustor of the gas turbine engine, thereby controlling the thrust of the engine.